



Pre-eruptive Intra-Coronal Resorption: Case Report and Treatment Options

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Introduction

Pre-eruptive intra-coronal resorption (PEIR) describes a radiolucent lesion in the coronal dentin beneath the dentin-enamel junction of un-erupted teeth.¹ The prevalence varies from 0.5 to 6% depending on the type and quality of the radiographic exposure, and age of patients used for assessment.² The defect is usually located on the central or mesial portion of the crown. The depth of the lesion is variable and often does not involve the pulp.³ PEIR can be diagnosed by routine panoramic or bitewing radiographs, but frequently is overlooked during periodic dental examinations. Since these lesions look like caries, they can be mistakenly diagnosed as “pre-eruptive caries.” No association has been found between pre-eruptive intracoronar resorption and gender, race, medical conditions, systemic factors, or fluoride supplementation.⁴

The pathogenesis of PEIR is unclear. Local factors may play a role in the etiology. Ectopic positioning of affected teeth or the adjacent teeth can cause local pressure that may be an inciting factor for resorptive cells to invade the dentin through enamel fissures or via the cemento-enamel junction. Histological examination of the lesion’s soft tissue may reveal signs of resorption, including resorptive cells (osteoclasts and macrophages) and scalloped lesion borders.⁵

Case reports have shown significant variation in the clinical course of PEIR radiolucencies. However, progress of the lesion is typically slow before the tooth erupts. Once the affected tooth emerges into the oral cavity, the development of rapid caries often ensues.⁶ The purpose of this case study is to describe the diagnosis and clinical management of an un-erupted permanent second molar with PEIR and discuss the treatment alternatives.

Case Report

An asymptomatic healthy, cooperative 12 year old female was referred by her general dentist to the Department of Pediatric Dentistry at the US Naval Dental Center Okinawa Japan after a routine periodic and radiographic exam. While examining the panoramic radiograph, the dentist discovered a large intra-coronal radiolucency in the unerupted right second mandibular molar. Compared to the panoramic radiograph taken 1 year prior, the radiolucency in the dentin appeared to be rapidly enlarging, possibly resorptive in nature and in close proximity to the pulp. Therefore, the decision was made to surgically expose the tooth and treat the lesion.

The patient was treated under inhalation sedation with nitrous oxide (N₂O-O₂) and the procedure was performed in conjunction a periodontist. The patient was anesthetized locally with 2% Lidocaine with 1:100,000 epinephrine. To enable better isolation for the placement of the restorative materials, an electrosurgical unit was used to remove the gingiva to expose the tooth. The caries-like tissue was carefully removed with a slow-speed round bur and spoon excavator. The remaining tooth structure appeared white and hard. There was no exposure of the pulp. The tooth was restored with glass ionomer cement (GC Fuji II LC, GC, Tokyo, Japan).

Chlorhexidine mouth rinse was prescribed for one week. Two week follow up occurred after the procedure and no adverse effects were noted. The oral hygiene was good and gingival healing was observed. The patient was instructed to return for clinical and radiographic follow up at 6 months and 1 year.



Fig 1: Panoramic radiograph taken 1 year prior revealed the initial radiolucent lesion on the 2nd mandibular molar.



Fig 2: Panoramic radiograph revealed an extensive, rapidly progressing radiolucency with close proximity to the pulp.



Fig 3: Post-operative panoramic radiograph taken immediately after the procedure.

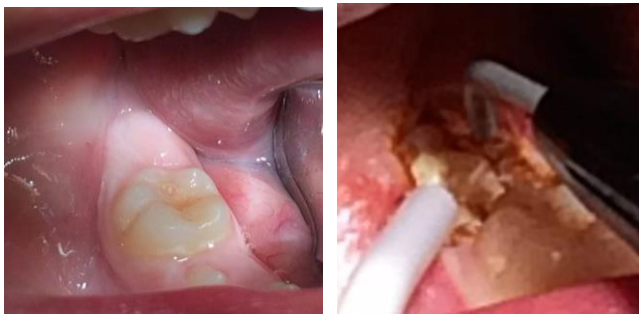


Fig 4: Preoperative view of the un-erupted second molar.
Fig 5: Electro-Surg was used to surgically uncover the tooth.

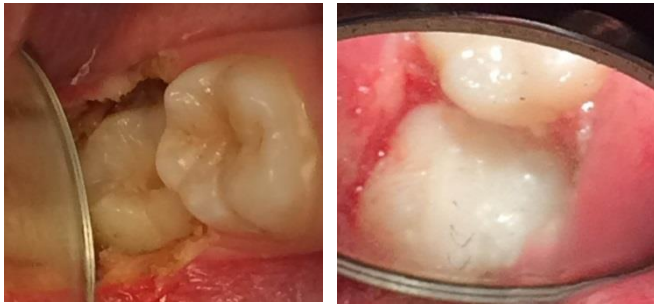


Fig 6: The lesion was found in the occlusal surface. Note the large cavitation after removal of the granulation tissue.
Fig 7: The tooth was restored with light cure glass ionomer cement.



Fig 8: Two weeks post-op with good gingival healing.

Discussion

There are a multiplicity of options available to treat the lesions of PEIR. Treatment options include surgical exposure and restorative treatment, extraction of the affected tooth, or simple monitoring and potential treatment after eruption. This decision is based on whether the lesion is progressive or static, the proximity to the pulp, and accessibility of the lesion.

When treating restoratively, as the authors did in this case, proximity to the pulpal tissue is paramount. Every attempt should be made to avoid exposing the pulp to include indirect pulp treatment by placing a protective liner to preserve the tooth's vitality, promote pulp tissue healing, and facilitate tertiary dentin formation. If an exposure does occur, a direct pulp cap with calcium hydroxide or mineral trioxide aggregate may be considered if the exposure is small to allow continued root development and apexogenesis.

Choice of restorative material is also a consideration. When treating an un-erupted tooth with difficult isolation, the use of light-cured glass ionomer cement is beneficial and has the advantages of releasing fluoride and bonding to tooth even in the wet environment. From an access perspective, the electrosurgery technique can pro-

duce better isolation than a traditional flap. However, there is some risk of decreasing the amount of gingiva present after eruption when electrosurgery is used.

Conclusions

Early detection and classification of the PEIR lesion allow an array of individualized treatments to be provided for a successful outcome and are essential to avoid pulpal involvement after tooth eruption. All un-erupted, developing teeth on radiographs should be examined for pre-eruptive resorptive lesions.

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